

**Development of rationalization programs in the  
North Pacific groundfish and crab fisheries**

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## **Introduction**

Since their inception, Alaska's fisheries have attracted participants willing to undertake great financial and personal risks to participate. Notwithstanding the adoption of measures to limit entry, several fisheries have attracted excess capital and overcapacity resulting in a race for fish. The race for fish has compromised safety and economic returns from the fisheries and complicates management and conservation of the resource. In response to these concerns, the North Pacific Fishery Management Council is in the process of "rationalizing"<sup>1</sup> the Bering Sea and Aleutian Islands (BSAI) crab fisheries and the Gulf of Alaska groundfish fisheries. This paper describes the status of these ongoing efforts and the management programs that the Council is developing for these fisheries. The paper begins with a description of the problems facing participants in the BSAI crab fisheries and the program that the Council has developed to address those problems. The paper then describes the status of efforts to develop a rationalization program for the Gulf of Alaska groundfish fisheries.

## **The Bering Sea/Aleutian Islands Crab Fisheries**

For several years, the North Pacific Fishery Management Council worked with participants in the BSAI crab fisheries through working groups and management measures to address problems that have arisen from the race for fish. In 2000, Congress stepped in, directing the Council to assess various rationalization programs for the fisheries, including individual fishing quotas (IFQs), processor shares, cooperatives, and quotas held by communities.<sup>2</sup> In response, the Council has developed a new and unique management program as its preferred alternative for rationalization of the Bering Sea/Aleutian Islands crab fisheries. Several provisions of the program, such as processor shares, some of the community protections, and the binding arbitration program, are arguably beyond the authority of the Council under the Magnuson Stevens Act. Through two reports, the Council has advised Congress of its interest in adopting the preferred alternative and currently awaits Congressional direction concerning the scope of Council authority. The Council has directed staff to prepare an Environmental Impact Statement/Regulatory Impact Review/Initial Regulatory Flexibility Analysis, the regulatory documents typically required for Council action. These analyses will be completed and released once the Council's authority is well-defined.

The preferred rationalization program reflects the Council's desire to accommodate the interests of several groups dependent on these fisheries—vessel owners, processors, captains and crew, and communities. Under the program, harvest quota shares (QS) will be issued to vessel owners and captains. Processors will be issued processing quota shares. Under these allocations, 90 percent of harvest shares are designated for delivery to holders of processing shares. Community interests are protected through several community protection measures including a regionalization program that requires that a certain portion of the catch be landed and processed in designated regions. An arbitration program is included to resolve price disputes, which could arise because of the constraints on markets created by the dual share allocations. The result of the Council's

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<sup>1</sup> "Rationalization" is a frequently used, seldom defined term that describes certain fishery management plans. Generally, the term is used to describe a management plan that results in an allocation of labor and capital between fishing and other industries that maximizes the net value of production (NPFMC/NMFS, 2003a).

<sup>2</sup> The Congressional directive appears in the Consolidated Appropriations Act of 2001, which was passed by Congress in 2000. The directive requested the Council to consider plans for rationalization of both the Bering Sea and Aleutian Islands crab fisheries and the Gulf of Alaska groundfish fisheries.

action is a complex fishery management program intended to protect the interests of those that depend on these fisheries. The discussion of the crab fishery management program concludes by identifying some of the most substantial hurdles that the program must overcome for the Council to judge it a successful management program for the fisheries. Each of these issues is described in a manner that provides the reader with a perspective of the institutional challenges faced by a program that attempts to address the concerns of several different interests. In addition, characteristics of the fisheries that contribute to the potential to overcome these obstacles are discussed.

### The Current Management Problem

The eight major BSAI crab fisheries<sup>3</sup> are currently managed under the License Limitation Program, a limited entry program under which licenses are allocated based on historic participation. Licenses are endorsed for one or more area and species. Table 1 shows the number of licenses in each fishery. Licenses are issued by vessel type, catcher vessel or catcher/processor. Interim licenses are currently subject to adjudication under recent participation requirements. Since licenses can carry multiple area/species endorsements, the total number of licenses is not additive.

Table 1. Bering Sea/Aleutian Islands Crab License Limitation Program Licenses by Endorsement and Vessel Type.

License endorsement	Fisheries the endorsement applies to	Catcher processor	Catcher vessel	Total
Aleutian Islands brown king	<i>W. Aleutian Islands (Adak) brown king</i> <i>E. Aleutian Island (Dutch Harbor) brown king</i>	9	29	38
Aleutian Islands red king	<i>Western Aleutian Islands (Adak) red king*</i>	5	33	38
BSAI opilio/bairdi Tanner	<i>Bering Sea C. opilio (snow crab)</i> <i>Bering Sea C. bairdi (Tanner crab)</i>	27	282	309
Bristol Bay red king	<i>Bristol Bay red king</i>	26	276	302
Pribilof Islands red/blue king	<i>Pribilof blue and red king</i>	3	133	136
St Matthew blue king	<i>St. Matthew blue king</i>	14	185	199
Total Licenses		27	294	321

\*This endorsement also applies to the Western Aleutian Islands (Dutch Harbor) red king crab fishery. The fishery has been closed for approximately 20 years.

Notwithstanding the limit on entry under this management program, conditions in the fisheries are symptomatic of substantial overcapacity. The three largest fisheries, the Bristol Bay red king crab, the Bering Sea *C. opilio* (or snow crab), and the Bering Sea *C. bairdi* (Tanner crab) fisheries, have received the most fishing effort. Stock declines in the Bristol Bay red king crab and the Bering Sea *C. opilio* have led to short derby seasons of a few days or weeks suggesting substantial overcapitalization. The Bering Sea *C. bairdi*, St. Matthew blue king crab, Pribilof blue and red king crab fisheries have all been closed the past several seasons due to low resource abundance. When open, these fisheries also received substantial effort, primarily from vessels that also participate in the larger crab fisheries. The Aleutian Islands golden king crab fisheries

<sup>3</sup> One additional fishery, the Norton Sound red and blue king crab fishery, may be considered a major crab fishery. This fishery is managed under superexclusive permitting, obviating the problems that driving the proposed changes in management in the other fisheries.

have received less effort than most of the other BSAI crab fisheries due to their remote grounds and the need for specialized gear for participation. Participation in these fisheries has increased in recent years and would likely increase further without a change in management. The Western Aleutian Islands (Adak) red king crab fishery has been closed in recent years, but opened in 2002 for a season under a new harvest strategy. The 2002 season lasted approximately 2 days.

Since these fisheries are currently managed under the License Limitation Program, harvester entry is limited. Individual harvests, however, are determined by a competitive race for fish. Safety can be compromised by the incentive to harvest the high-valued crab more quickly than others. At the extreme, during the 2002 Bristol Bay red king crab fishery season, which lasted only 68 hours, fewer than 250 vessels harvested more than 8.5 million pounds of crab. The ex vessel price of crab during the season was approximately \$6.80 per pound. So, the gross revenue of the average vessel was in excess of \$200,000. The fleet harvested over \$750,000 of crab each hour of the season. The consequences of the race for fish have spillover effects on the processing sector, which is forced to process landings as quickly as possible to minimize deadloss.<sup>4</sup> Efficiency, quality, and product development are all sacrificed to meet time pressures that the race for fish imposes on the processor sector.

Since the seasons in most of the fisheries do not conflict, most participants are active in several of the fisheries, moving from one fishery to another throughout the year. Notwithstanding these opportunistic movements from fishery to fishery, equipment is often idle for several months of the year, suggesting substantial overcapitalization. In addition, several participants report that they are unable to breakeven in the fisheries at current harvest levels.

### **The Proposed Management Program for the Crab Fisheries**

To address the problems that have arisen in the crab fisheries, the Council has developed a rationalization program specifically for those fisheries. This section describes that program.

#### *The Harvest Sector*

In each fishery, harvesters would be allocated quota shares (QS), a revocable privilege that allow the holder to receive an annual allocation of a specific portion of the annual TAC from a fishery. These annual allocations are referred to as IFQs. QS will be designated as either catcher vessel shares or catcher/processor shares, depending on whether the vessel that created the privilege to the shares processed the qualifying harvests on board. Catcher vessel IFQ would be issued in two classes, Class A shares and Class B shares. Class A shares, which will require delivery of harvests to a processor holding processor quota, will be issued for 90 percent of the catcher vessel allocation in each fishery.<sup>5</sup> Class B shares, which will permit delivery of harvests to any processor (except catcher/processers) will be issued for the remaining 10 percent of the catcher vessel allocation.<sup>6</sup> Class B shares are intended to provide harvesters with additional market leverage for negotiating prices for landings of crab. Consequently, Class B shares will be allocated only to harvesters that are unaffiliated with holders of processing shares. This Class

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4 Since crab must be processed live to prevent spoilage, deadloss is an acute concern in these fisheries.

5 Class A share landings are not tied to a particular processor, but must be delivered to a processor holding unused processing shares.

6 The Class A/Class B share distinction would apply only to annual IFQ allocations. So, 90 percent of the IFQ issued would be A shares and 10 percent B shares. By not making an A share/B share distinction in QS, the Council has eliminated the possibility that QS holders would have different holdings of B shares (and consequently different market power with respect to processors).

A/Class B share division is intended to balance the interests of processors with the interests of harvesters.<sup>7</sup>

A harvester’s allocation of QS for a fishery would be based on historic landings in that fishery (excluding landings of deadloss). Specifically, each allocation is the harvester’s average annual portion of the total qualified catch during a specific qualifying period. Qualifying periods were selected to balance historical participation and recent participation. Different periods were selected for different fisheries to accommodate closures and other circumstances in the fisheries in recent years. The most recent seasons were excluded in part to limit the effectiveness of efforts by participants to obtain a larger allocation by increasing participation in recent seasons when it was apparent that allocations would be based on historic harvest levels. Table 2 shows a summary of the allocations to harvesters in the different fisheries.

Table 2. Summary of harvest allocations (allocations reported are the share of the total allocation) and ownership caps.

Fishery	Estimated number of eligible vessels	Median allocation	Average of four largest allocations	Ownership cap	Number of owners over the cap
Western Aleutian Islands (Adak) Golden King Crab	11	0.026	0.216	0.10	*
Western Aleutian Islands (Adak) Red King Crab	28	0.008	0.193	0.10	6
Bristol Bay Red King Crab	254	0.004	0.009	0.01	10
Bering Sea C. Opilio	245	0.004	0.010	0.01	16
Bering Sea C. Bairdi (EBS Tanner Crab)	266	0.004	0.011	0.01	17
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	12	0.077	0.157	0.10	6
Pribilof Red and Blue King Crab	110	0.006	0.031	0.02	18
St. Matthew Blue King Crab	138	0.008	0.015	0.02	*

\* Withheld for confidentiality

Source: NPFMC Crab Rationalization Database, Version 1, 2001

QS and IFQ would both be transferable under the program, subject to limits on the amount of shares a person may own or use. Transferability of shares is necessary to reduce fleet size and remove capital from the fishery, as well as to improve economic efficiency and to aid in coordination of deliveries.<sup>8</sup> Separate caps would be imposed on the ownership of shares by any person and the use of IFQs on any vessel. These caps are intended to prevent excessive consolidation of shares under the program. Limits on consolidation can be used to ensure adequate levels of market competition, facilitate entry to the fishery, protect labor markets, and ensure that the resource supports several participants. Different caps are chosen for the different fisheries because of different fleet characteristics and the differences in historic dependency of participants on the different fisheries.<sup>9</sup> Vessel use caps would not apply to cooperatives providing an additional incentive for cooperative participation. The ownership and use caps proposed for the different fisheries are also shown in Table 2.<sup>10</sup> Table 2 also shows the estimated number of

<sup>7</sup> Since B shares are issued only to independent harvesters, if processor affiliates held 20 percent of all QS, 12.5 percent of each independent harvester’s allocation would be B shares to maintain the 90 percent/10 percent ratio of catcher vessel A shares to catcher vessel B shares.

<sup>8</sup> Economic theory suggests that the most efficient harvesters will buy out less efficient harvesters.

<sup>9</sup> Ownership caps are applied individually and collectively. Under this rule all of a person’s direct holdings are credited toward the cap. In addition, a person’s indirect holdings are also credited toward the cap in proportion to the person’s ownership interest. For example, if a person owns a 20 percent interest in a company that holds 100 shares, that person is credited with holding 20 shares for purposes of determining compliance with the cap.

<sup>10</sup> The analysis relied on registered license holder data files, which do not show ownership holdings beyond the registered owner. Detailed ownership data necessary for full analysis of ownership is currently unavailable because of restrictions that prevent analysts from accessing detailed ownership information.

registered license holders that would be allocated shares in excess of the applicable ownership caps. Initial allocations of shares above the cap would be grandfathered.

### *The Processing Sector*

The program would also allocate to processors a processing privilege, processing quota shares (PQS), that is analogous to the harvest privilege allocated to harvesters. These allocations to processors are intended to protect processor investment in the fisheries and balance the bargaining power of processors with harvesters receiving harvest shares. PQS are a revocable privilege to receive deliveries of a specific portion of the annual TAC from a fishery. These annual allocations of processing privileges are referred to as Individual Processing Quotas (IPQs). IPQs would be issued for 90 percent of the allocated harvests, corresponding to the 90 percent allocation of Class A harvest shares. The remaining 10 percent of processing would be unallocated, and therefore harvesters could deliver those landings to any processor. Withholding the allocation of 10 percent of processing is intended to contribute to a balance of bargaining power between the harvesting and processing sectors. In addition, this unallocated 10 percent of processing could provide for entry to that sector. Generally, processing shares would be regionally designated for processing in a North or South region (corresponding to the regional designation of the Class A harvest shares). PQS allocations would be based on processing history during a specified qualifying period for each fishery. A processor's allocation in a fishery would equal its share of all qualified processing in the qualifying period (i.e., pounds processed by the processor divided by pounds processed by all qualified processors). Table 3 shows summary statistics for the allocations of processing shares in the different fisheries.

Table 3. Summary of processing allocations (allocations reported are the share of the total allocation) and ownership caps.

<b>Fishery</b>	<b>Median</b>	<b>Average of four largest allocations</b>	<b>Number of processors</b>	<b>Allocations in excess of the 30% cap</b>
Western Aleutian Islands (Adak) Golden King Crab	0.008	0.244	10	*
Western Aleutian Islands (Adak) Red King Crab <sup>1</sup>	0.008	0.244	10	*
Bristol Bay Red King Crab	0.017	0.156	19	0
Bering Sea C. Opilio	0.020	0.145	22	0
Bering Sea C. Bairdi (EBS Tanner Crab)	0.006	0.150	27	0
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	0.060	0.233	8	*
Pribilof Red and Blue King Crab	0.038	0.173	15	0
St. Matthew Blue King Crab	0.043	0.193	13	*

<sup>1</sup> Allocation is based on the WAI (Adak) golden king crab allocation.

\* Withheld for confidentiality.

Sources: NPFMC Crab Rationalization Database, Version 1, 2001.

Processor shares would be transferable, including leasing of PQS (or equivalently, the sale of IPQs) subject to use and ownership caps. IPQs would be usable at any facility of a processor without transfer. As with harvest shares, transferability of processing shares may facilitate decapitalization, efficiency, and the coordination of deliveries. In addition, new processors would enter the fishery by purchasing PQS or IPQs or by purchasing crab harvested with Class B shares. Ownership of PQS would be limited to 30 percent of the outstanding PQS in a fishery.<sup>11</sup> Initial

Application of the rules under the program will require the submission of detailed ownership information by shareholders.

<sup>11</sup> PQS ownership caps would be applied using a threshold rule for determining whether the shares are held

allocations of shares above the cap would be grandfathered.<sup>12</sup> The number of allocations in excess of the ownership cap in each fishery is also shown in Table 3.

Processor allocations are substantially more concentrated than harvester allocations. This relative concentration occurs for two reasons. First and of greater importance, there are relatively fewer processors active in the fisheries than vessels active in the fishery. Second, more complete ownership information is available concerning processors. Processor allocations were aggregated to the company level using existing records with the assistance of processor representatives. This allowed the analysts to obtain fairly reliable facility ownership data and company level allocation estimates. Records of vessel ownership that are reliable are not available.

### *Regionalization*

To maintain the regional distribution of landings in the crab fisheries, the Council has chosen to regionalize harvest and processing shares. QS, Class A IFQ (which requires delivery to a processor holding unused IPQs), and processor shares would be regionally designated under the program. Crab harvested with regionally designated IFQ would be required to be delivered to a processor in the designated region. Likewise, a processor with regionally designated shares would be required to accept delivery of and process crab in the designated region.

Two regional designations would be created in most fisheries. The North region would be all areas on the Bering Sea north of 56°20' N latitude. The South region would be all other areas. The regional designation is intended to preserve the historic geographic distribution of landings in the fisheries. Communities in the Pribilof Islands are the prime beneficiaries of the regionalization of the program.

QS and PQS would be designated based on the location of the activity that gave rise to the allocation. For example, qualified catch delivered in a region would result in shares designated for that region. Discrepancies in the North/South allocations in the two sectors would occur because of the differences in qualified catch caused by the qualification requirements and differences in qualification years for the sectors. This discrepancy would be corrected by redesignation of a portion of the harvest sector allocation. Only persons receiving harvest share allocations in both regions would have a portion of their shares redesignated. The number of a person's shares redesignated would be proportional to the total allocation in the region.

The Council has created exceptions to the North/South regional designations. In the western Aleutian Islands (Adak) golden king crab fishery, 50 percent of the QS and PQS would be designated as western shares, which would be required to be landed and processed west of 174°W longitude to benefit communities in that area—primarily Adak.<sup>13</sup> This designation would be applied to all allocations regardless of the historic location landings in the fishery. A second exception is the Bering Sea *C. bairdi* fishery, which would have no regional designation. This

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by a processor and then the individual and collective rule for determining the extent of share ownership. Under the threshold rule, any entity with 10 percent or more common ownership with a processor is considered to be a part of that processor. Any direct holdings of those entities would be fully credited to the processor's holdings. Indirect holdings of those entities would be credited toward the processor's cap in proportion to the entities ownership.

<sup>12</sup> The Council also included a 60 percent cap on processing share use in the North region of the opilio fishery to ensure that multiple processors would operate in the North region in that fishery. Regional processing use caps were not adopted for other fisheries.

<sup>13</sup> The remaining 50 percent of the Class A IFQ allocation would have no regional designation and would not be subject to a regional delivery requirement

fishery is anticipated to be conducted primarily as an incidental catch fishery with the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries making any regional designation operationally difficult and potentially overly restrictive.

#### *Catcher/processor provisions*

Catcher/processors participate in both the harvest and processing sectors and therefore have a unique position in the program. To protect their historic role and participation, catcher/processors will be allocated catcher/processor QS and corresponding catcher/processor IFQs under the program. These shares will carry both a harvest privilege and an accompanying on board processing privilege. Catcher/processors will be allocated catcher/processor shares in accordance with the allocation rules for harvest shares for all qualified catch that was processed on board. Holders of catcher/processor IFQs may choose not to process harvested crab, instead delivering that unprocessed crab to any other processor. Use of catcher/processor shares in this manner would be akin to the use of Class B harvest shares, which do not require the receiving processor to hold IPQs. Catcher/processor shares would not have regional designations, so the delivery of these shares will not be regionally limited.

Holders of catcher/processor shares may also sever the harvesting and processing privileges, thereby creating separate catcher vessel QS and PQS. These newly severed interests would create a privilege to annual IFQ allocations and IPQ allocations, which could be held by different individuals. When severed, the resulting QS and PQS must be designated for a region with both shares taking the same regional designation. Allowing the conversion of shares permits a catcher/processor shareholder to realize the full value of shares and provides greater flexibility in using the privileges. Adding a regional designation would prevent the creation of a new class of shares—Class A shares without a regional designation—for which the market would be extremely limited.

#### *Cooperatives*

The program would permit harvesters to form voluntary cooperatives associated with one or more processors holding PQS. Cooperatives are intended to facilitate efficiency in the harvest sector by aiding harvesters in coordinating harvest activities among members and deliveries to processors. Both sectors could realize efficiencies through well coordinated activities and flow of product. Harvesters can benefit by the cooperative relationship through which shares can be quickly traded under prearranged terms and conditions. These trades should help harvesters consolidate small portions of their allocations on a single vessel at the end of the season when a small portion of each vessel's allocation is remaining. In the pollock cooperatives organized under the American Fisheries Act, harvesters have effectively coordinated harvests so that less than 1 percent of the TAC is unharvested. In the halibut and sablefish fisheries, which are managed with IFQs with limited leasing, harvesters have left more than 5 percent of the TAC unharvested, particularly in the early years of the program. Processors can also benefit from cooperatives, which can coordinate deliveries so that processing crews and equipment have less down time between deliveries. Delivery coordination can also reduce queuing of harvesters waiting to offload their harvests, reducing deadloss of harvested crab.

Annual IFQ allocations of individuals that are cooperative members would be made to the cooperative. Processors that associate with cooperatives would not be members of the cooperatives but would remain independent. A cooperative would not be bound to deliver any harvests to an associated processor provided that the cooperative complies with any delivery requirements of the program associated with the harvest and processing shares. Processor



association, however, is intended to facilitate delivery coordination. Harvesters within a cooperative would be permitted to transfer shares freely and vessels on which cooperative shares are fished would not be subject to use caps. Shares would also be freely transferable between cooperatives, but these transfers would require filing with NOAA Fisheries Restricted Access Management office before shares could be fished.

### *Binding Arbitration*

BSAI crab fisheries have a history of contentious price negotiations. Harvesters have often acted collectively to negotiate an ex vessel price with processors, at times delaying fishing to pressure price concessions from processors. Because the processing share allocations under the program are novel, the effects on price negotiations cannot be fully predicted. To guide price negotiations under the new program, the Council has included a provision for binding arbitration for the settlement of price disputes. The binding arbitration system is intended to compel shareholders to offer reasonable terms and, if necessary, establish a reasonable price when a negotiated price cannot be reached. In a system with a one-to-one relationship of harvest and processing shares, the market of persons for a shareholder to transact with will be limited. The concern is most acute for the shareholders from each sector that are last to contract for their shares.

The arbitration program would apply only to A shares, which require delivery to a holder of processing shares. The arbitration standard directs the arbitrator to identify a price that preserves the historic division of first wholesale revenues between the two sectors. Industry participants supported the historical division of revenues as a fair and workable method of preserving the balance of interests of the two sectors in the fisheries.<sup>14</sup> The arbitrator would be permitted to consider other relevant factors, such as changes in product markets and prevailing prices, when applying this standard.

The price settlement process outlined in the arbitration program would begin with an industry selected market analyst and arbiter developing a market report and a non-binding price formula. The non-binding price formula is intended to provide a benchmark price that will be a starting point for negotiations and minimize the number of price disputes as negotiations progress. Participants are provided with latitude to settle a price that varies from the announced price to accommodate individual circumstances, such as delivery timing and location. After the negotiating period, harvesters can unilaterally initiate a binding arbitration proceeding with any holder of uncommitted processing shares by committing deliveries to that processor. The non-binding benchmark price would be used as a guide by the arbiter, but the delivery price could be changed to accommodate the circumstances of the transaction at the discretion of the arbiter. Each of the binding arbitration proceedings would involve a single processor and one or more harvesters. The arbitration would be final offer, under which the arbiter is limited to choosing between two final offers submitted, one from each party.<sup>15</sup>

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14 Alternative standards considered by the committee, including a “competitive price” or a price that preserves the “historic division of rents” in the fishery, were thought to be unworkable and less predictable. A “competitive price” is the price established in a competitive market with an infinite number of buyers and sellers each with perfect information. A “historic division of rents” standard would require that the arbitrator determine the division of intrinsic value of the harvested resource between the two sectors. . The abstract nature of these concepts makes application of either standard very complicated and less predictable than many participants were willing to accept. In addition, both standards would require the arbitrator to examine extensive data including the books of all participants.

15 In a proceeding with multiple harvesters, a processor would submit a single final offer. Harvesters could either act collectively (to the extent permitted by the Fishermen’s Collective Marketing Act of 1934), submitting a single offer for several fishermen, or act independently, with each harvester submitting a

The first stage of the two-stage arbitration structure of this process should minimize disputes by providing participants with a synopsis of market conditions and an early signal of a reasonable price on which offers can be based during the negotiation period. The second stage binding arbitration proceedings are conducted at an individual level that provides for the resolution of all issues raised by the parties to the price dispute.<sup>16</sup>

### *Community protection measures*

The rationalization program contains several provisions intended to protect the interests of communities that depend on the fisheries. Development of these provisions required the Council to balance the interests of several communities not only against one another, but also against the interests of the harvesting and processing sectors. St. George and St. Paul in the Pribilof Islands depend on the crab fisheries as their economic base and could suffer from consolidation of activities in ports in the Aleutians and Alaska Peninsula that might be stimulated by slowing the race for fish. Adak is developing its crab industry after the recent departure of the military. Dutch Harbor has long depended on the crab fisheries and is home to several processors that support fleets in many fisheries. King Cove is highly dependent on a single processor active in both crab and groundfish fisheries. Kodiak, historically dependent on crab fisheries in the Gulf of Alaska, has maintained an interest in the more distant Bering Sea crab fisheries through its fleet and some of its processors.

Many of the measures, including the underlying two-pie structure of the program, are intended to provide community protections absent in a more traditional harvester-only IFQ program. Allocation of processing shares for 90 percent of the TAC is intended to support communities' historic participation by tying quota to community-based processing. This community link is intended to provide stability to not only the processing sector but also to supporting industries in the communities.

Several additional provisions are included in the program to protect communities. A two-year "cooling off period" would be established during which processing shares cannot be relocated from the community where the historical processing occurred that led to the allocation. Under this provision, all processing shares will bear a community designation, which will require processing of the share in the designated community for the first two years of the program. The "cooling off period" is intended to provide a period of general stability for processors and communities to adjust to the program. At the beginning of share-based management, trading of shares could lead to rapid consolidation in the processing sector, as some processors may choose to exit the fisheries. The "cooling off period" requirement is intended to provide each historic processing community with an added opportunity to entice processors to maintain facilities in the community

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single bid. In no event would more than one processor participate in the same binding arbitration proceeding.

<sup>16</sup> An experimental economic analysis of two arbitration structures also suggests that the establishment of a fleetwide price could stimulate additional competition among processors. That analysis examined an arbitration structure that set a fleetwide price for landings prior to the marrying of holders of unused harvesting and processing shares and an arbitration structure that established prices for each processor based on individual arbitration proceedings. In the experiment, the fleetwide price (which would apply to all "A share" deliveries) gravitated toward a competitive market price over the course of several seasons. Whether this phenomenon would occur if the fleetwide price model were implemented is uncertain. "A share" prices generated by the model that used separate arbitration proceedings for each processor showed no similar tendency toward the competitive price, even though the same arbitration standard was applied.

under the new management structure.<sup>17</sup>

A right of first refusal will be granted to community groups and Community Development Quota<sup>18</sup> (CDQ) groups from communities with significant crab processing history on the sale of any processing shares for use outside of the community.<sup>19</sup> The right of first refusal is a compromise reached by a committee comprised of representatives of communities, processors, and harvesters. The provision is intended to provide community and CDQ groups with a right to intervene on behalf of their communities, if a local processor intends to sell its processing interests outside the community. An exception to the right would allow a company to consolidate operations among several commonly owned plants to achieve intra-company efficiencies. In addition, companies could lease shares for use outside of a community subject to limits. Use of more than 20 percent of a person's IPQ holdings outside of a community for more than 3 of 5 years would trigger the community right of first refusal. To exercise a right of first refusal a community group would be required to meet all of the terms and conditions of the underlying transaction. The right of first refusal would be established by a contract to be entered by the processor receiving the allocation of PQS and the community group. The processor would be required to enter the contract to receive the initial allocation of shares by NOAA Fisheries. To receive the right, a community would need to designate a qualified community group at least 90 days prior to the deadline for applications for the initial allocation of processing shares under the program. Community representatives that participated in the development of the right of first refusal provision were well aware of the potential for companies to use the exceptions to the right and the performance requirements for exercising the right to avoid the potential for a community to exercise the right. Most of these community representatives, however, believe that the right of first refusal will provide their communities with some leverage to work with processing companies to maintain interests in their communities. Under the rationalization program, community and CDQ groups that would receive the right of first refusal would also be permitted to purchase harvesting and processing shares in the open market to enhance fisheries activities for their communities. Sea time requirements for the purchase of harvest shares would be waived for these groups.

An additional community protection measure adopted by the Council would cap the total amount of IPQs (or the annual allocation of processing shares) for the two largest fisheries, the Bristol Bay red king crab and the Bering Sea *C. opilio* fisheries. In years of low abundance, processor shares are intended to provide stability to the processing sector and historically dependent communities. As stocks increase, the caps will limit the allocation of processing shares providing opportunity for new processors and communities to participate and limit any potential windfall to historic participants. In the Bering Sea *C. opilio* fishery, the proposed 175 million pound cap was exceeded 5 times between 1990 and 2000. Bristol Bay red king crab 20 million pound cap was exceeded 11 times in the last 33 years.

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17 Relatively small amounts of processing shares would be permitted to be moved from a community during the "cooling off" period to facilitate coordination of deliveries.

18 The CDQ program is an economic development program under which harvest allocations are made to groups representing rural Western Alaska communities to facilitate fishing activity and economic development in those areas.

19 The right of first refusal would be granted for any community with in excess of 3 percent of the qualified processing history in any fishery. In addition to the general right of first refusal described in this paragraph, a right of first refusal would be granted to any community in the Gulf of Alaska north of 56°20' N latitude that exceeds the processing history threshold on shares from that same area from communities that do not exceed the threshold. This provision is intended to facilitate the sweep up of Gulf processing shares by Gulf communities with historic dependence on the fisheries.

### *Captain and crew share (C share) allocation and crew provisions*

The rationalization program would also protect captains in the crab fisheries by allocating three percent of the TAC to eligible captains as a separate class of shares (C shares). The allocation to captains would be based on the same qualifying years and computational method used for vessel allocations. To be eligible to receive an allocation, a captain would have to have at least one landing in three of the qualifying years and have recent participation demonstrated by at least one landing in two of the three most recent seasons preceding June 10, 2002.<sup>20</sup> For the Adak red king crab, the Pribilof red and blue king crab, the St. Matthew blue king crab, and the *C. bairdi* fisheries, recency would be demonstrated by at least one landing in two of the three most recent seasons preceding June 10, 2002 in the *C. opilio*, Bristol Bay red king crab, or one of the Aleutian Islands golden king crab fisheries.<sup>21</sup> During the first three years a fishery is open after implementation, C shares would not be subject to IPQ or regional delivery requirements.<sup>22</sup> After three years, C shares would be subject to the Class A IFQ/Class B IFQ distinction with commensurate regional delivery requirements unless the Council determines, after review, not to apply those designations.<sup>23</sup> Regional designations would be based on the captain's historical deliveries, with an adjustment to match the regional processing quota shares (PQS) distribution using the same scheme used for making that adjustment to the harvest share distribution.

To be eligible to purchase C shares a person must be a US citizen with at least 150 days sea time in a US commercial fishery in a harvest capacity. In addition, the person must be an "active participant" in the BSAI crab fisheries, demonstrated by a landing in a fishery included in the rationalization program in the last 365 days evidenced by either an ADF&G fish ticket, an affidavit from the vessel owner, or other verifiable evidence.

Leasing of C shares in each fishery would be permitted in the first three seasons a fishery is prosecuted after implementation of the program. After the first three seasons the fishery is prosecuted, leasing would be permitted only in the case of a documented hardship (such as a medical hardship or loss of vessel) for the term of the hardship, subject to a maximum of two years over a ten year period.

To ensure that these shares benefit at sea participants in the fisheries, holders of the underlying QS would be required to be on the vessel harvesting the C share IFQs. In addition, individual C share use and holdings in each fishery are capped at the same levels as the vessel use caps applicable to general harvest shares. Initial allocations in excess of the cap are grandfathered. C shares are not considered in determining a vessel's compliance with the vessel use caps on general harvest shares. Landings with C shares, however, would be subject to the IFQ fee program.

Catcher processor captains would be allocated catcher/processor C shares that include both a

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<sup>20</sup> Recency requirements would be waived for captains who died in fishing related incidents.

<sup>21</sup> The Adak red king crab, the Pribilof red and blue king crab, the St. Matthew blue king crab, and the *C. bairdi* fisheries were all closed for several consecutive seasons preceding 2002.

<sup>22</sup> During these three years, C share IFQ would not be considered in determining the 90 percent/ten percent ratio of Class A IFQ to Class B IFQ in each region of each fishery.

<sup>23</sup> If C share IFQ are issued with the Class A IFQ/Class B IFQ distinction after the third year of the program, the ratio of C share Class A IFQ to Class B IFQ would be the same as the ratio of CV Class A IFQ to Class B IFQ in each region. In addition, both the CV Class B IFQ allocation and the C share Class B IFQ allocation would be included in determining the ten percent allocation of Class B IFQ in each region in each fishery.

harvesting and on board processing privilege for all qualified landings that were processed on board. Harvests with catcher/processor C shares may also be delivered to shore-based or floating processors. Catcher vessel C shares must be delivered to shore-based or floating processors for processing.

The allocation to captains is intended to provide additional leverage to captains when negotiating contracts with vessel owners. Requiring that these shares be held by active participants in the fisheries is intended to provide an avenue for entry to the fisheries to captains and crew. In the long run some of these participants could transition to larger shareholdings by purchasing from the general harvest share pool.

To aid captains and crew in purchasing QS, a low interest loan program (similar to the loan program under the halibut and sablefish IFQ program) would be created. This program would be funded by 25 percent of the funds collected under the fee program applied to IFQ holders in the BSAI crab fisheries. Loan money would be accessible only by “active participants” and could be used to purchase either C shares or general harvest shares. Any general harvest shares purchased with loan money would be subject to all use and leasing restrictions applicable to C shares for the term of the lease. Allowing the purchase of general harvest shares with these monies is intended to facilitate transition of captains and crew to greater ownership. Requiring share holders to remain active on vessels during the term of the loan is intended to ensure that persons benefiting from the funds remain active as long as the loans are supporting their interests in the fisheries.

#### *Sideboarding of participation in other fisheries*

The rationalization program is likely to affect the fishing patterns of participants in the crab fisheries. Some participants may sell or lease their shares. Other participants could change the timing of their fishing. In either case, the removal of time pressure of the race for fish by the rationalization program could allow crab fishers to increase participation in other fisheries. To protect participants in these other fisheries, “sideboard” protections would apply to all vessels that formed the basis for an allocation in the *C. opilio* fishery. The sideboards would restrict vessels participating in the crab rationalization program to their aggregate historic harvests in all Gulf of Alaska groundfish fisheries (except the sablefish fishery, which is subject to the IFQ program harvest limitations). Under the sideboard rules, vessels that do not meet threshold historic groundfish harvest levels would be prohibited from participation in Gulf of Alaska groundfish fisheries. Also, harvesters with less than a threshold harvest level of *C. opilio* and substantial groundfish harvests would be exempt from the sideboard limitations.<sup>24</sup> Sideboards would be applied to vessels but would also restrict harvests on the groundfish license associated with the crab licenses used to qualify for QS, if that license is used on another vessel. Application of the sideboards to both licenses and vessels is thought to be the most effective means of preventing spillover effects on other fisheries.

Crab harvests by vessels that participate in the Bering Sea pollock fisheries are currently limited by sideboard restrictions established under the American Fisheries Act (AFA). Likewise, the quantity of crab processed by entities that participate in the Bering Sea pollock fisheries are also limited by sideboards established under the AFA. Since the crab fisheries would be rationalized,

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<sup>24</sup> The Council exemption focused on harvests of *C. opilio* because that fishery is prosecuted at the same time as the A season Pacific cod fishery—the fishery that is most likely to experience spillover effects from an influx of crab vessels. Vessels that have minimal historic participation in the *C. opilio* fishery are unlikely to have their fishing patterns affected by the rationalization program in a manner that imposes on the Gulf of Alaska groundfish fisheries.

these sidebar restrictions would be removed under the crab rationalization program.

#### *Annual and periodic reports*

To determine the effectiveness of the program in meeting its objectives, the Council has developed a program of comprehensive reviews. Under the program, NOAA Fisheries RAM Division in conjunction with the State would be directed to produce annual reports concerning the program and a preliminary review of the program at three years. A full review of the program would be undertaken at the first Council meeting in the fifth year after implementation of the program. The review would be intended to objectively measure the success of the program in addressing the concerns and achieving the goals and objectives specified in the Council's problem statement and the Magnuson-Stevens Act standards. Impacts of the program on the resource, vessel owners, captains, crew, processors, and communities would be examined. The review would include an assessment of options to mitigate negative impacts of the program. Additional reviews would be conducted every five years.

#### *Data Collection*

Data availability frequently limits our ability to analyze economic impacts of fisheries and fishery management. A mandatory data collection program would be developed and implemented under the rationalization program. Cost, revenue, ownership, and employment data would be collected regularly from the harvest and processing sectors. The data would be used to study the economic and social impacts of the program on harvesters, processors, and communities and assess the success of the program. Participation in the data collection program would be mandatory for all participants in the fisheries. The program would require adequate regulatory and statutory protection of confidentiality. The novelty of the data collection program and the lack of uniformity in accounting practices could lead to some compliance errors notwithstanding good faith efforts to comply with the requirements of the program. Data collection enforcement and penalties would be structured to avoid overpenalizing honest mistakes of those attempting to comply with its requirements.

#### *Monitoring and enforcement*

NOAA Fisheries and the State of Alaska would coordinate monitoring and enforcement of this program. Managers must be able to ensure adherence to the regulations governing the fishery. A harvester's harvest activity, a cooperative's aggregate catch, a processor's processing activity, and a catcher/processor's activity would need to be monitored. Methods for catch accounting and catch monitoring plans for cooperatives would be developed to generate data that would provide accurate and reliable estimates of the total catch and landings to manage quota share accounts, prevent overages of harvest IFQ and IPQ, and determine compliance with regional and community landing and processing requirements. Monitoring needs include catch composition, bycatch and discards, and deadloss. Tools used for monitoring include scales at processing plants, observers, vessel monitoring system, shoreside observers, and shoreside electronic reporting. A portion of the management fees collected from harvesters and processors under the program would be shared with the State of Alaska for management and observer programs in the fisheries. The amount of these fees and on whom those fees are imposed have not been specified.

### **Implications of and Challenges for the Crab Management Program**

For the Council to view its program as a success several goals will need to be achieved. This section examines some of those goals and also some of the more imposing hurdles to the success

of the program. Some characteristics of the fisheries and their participants, which could aid in meeting these challenges are discussed.

### *Implementation*

Implementation of the program will require the allocation of harvest shares to license holders and captains and processing shares to processors. All shares will be regionally designated based on where landings that led to the allocation occurred. In addition, processing shares will be designated by community for establishing the community protections. Developing each of these allocations is a substantial task requiring detailed landing records. Although the allocations are daunting, available records should facilitate the task. The State of Alaska collects fish tickets for all landings creating a historical record that can be used for analyzing the fisheries and administering certain management programs. In addition, State Commercial Operator's Annual Reports required of processors can be used for verification of fish ticket data, in some cases. The initial allocation of harvest shares will be aided by the current limited entry program, the License Limitation Program (LLP), which will be used to determine harvester eligibility.

Based on the analysis supporting the Council's selection of the preferred program, approximately 300 vessels, 30 processors, and 200 captains will qualify for allocations. The number of allocations is substantially less than the 6,000 persons that applied for allocations in the halibut and sablefish program implemented by the Restricted Access Management (RAM) Division of the National Marine Fisheries Service, the same agency that will administer the crab program (RAM, 2002). Given the available data and the experience of managers from administering the halibut and sablefish IFQ program, administration of the initial allocations, while time consuming, should be manageable.

### *Inseason Management and Environment Implications*

In the current derby fisheries, managers monitor harvests by voluntary inseason reports and attempt to time the closure of the fishery with completion of the harvest of the guideline harvest level (GHL), a range identifying an acceptable total catch. Although managers have become very good at estimating total harvests, the GHL may be exceeded through no fault of the managers because inseason monitoring cannot keep pace with harvests during the short seasons. For example, in the Bering Sea *C. opilio* fishery the harvest exceeded the GHL in every year from 1995 to 2000.

In the share-based fishery proposed, total catch is likely to be managed more precisely under a total allowable catch (TAC), which is a specific catch limit. In addition, the individual allocations under the proposed management also increase accountability and decrease the chance of overharvests from the fishery.<sup>25</sup> Overages will be forfeited under the program and underages will not be credited in the following year.

Reductions in bycatch mortality could also result from the change in management.<sup>26</sup> In general, crab mortality from bycatch should decline under share-based management. Harvesters in the

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<sup>25</sup> Underharvesting, which is likely to occur under a share-based management, can be limited by liberal share transfer rights and coordination among harvesters. For example, in the Bering Sea pollock fisheries, coordination of the pollock cooperatives has led to harvests of greater than 99 percent of the TAC without overharvest.

<sup>26</sup> Bycatch of groundfish in the crab fisheries is very limited and is not viewed as an environmental problem in these fisheries.

current race for fish deploy and retrieve gear in relatively short cycles. Fixed share allocations in a share-based fishery will allow harvesters to use longer soak times allowing crab pot escape mechanisms to function reducing harvests and discards and associated mortality of undersized and female crab. Relaxation of pot limits, currently in place to allow managers to control effort, should also contribute to longer soak times. Harvesters with fewer time constraints should also be able to fish with greater care, reducing the number of pots that are lost on the grounds each year. Reducing the number of pots lost each year would help reduce crab mortality caused by “ghost fishing”<sup>27</sup>.

Although total landings may be more precisely achieved by the program, a competing effect could arise if harvesters perceive a benefit to high grading. High grading is likely to occur if the increase in revenues from discarding low value, barnacled or brown shell crab and harvesting high value, clean shell crab exceeds the increase in cost of sorting, making discards, and additional harvests.<sup>28</sup> The time pressures of the current derby fishery reduce the benefits of high grading since a harvest share is sacrificed by discarding crab. Under the new management, discards will not reduce harvest shares. To the extent that efforts of the harvest sector to increase quality of catch increase discard mortality or have stock effects, these efforts could reduce the benefits derived from the fishery in the long run.<sup>29</sup> The extent and effects of any high grading problem cannot be predicted. More extensive monitoring will be necessary to determine the extent of high grading. If necessary harvest strategy<sup>30</sup> modifications could be made to curtail high grading or mitigate its stock effects. Vessel Monitoring Systems and increased observer coverage and dockside sampling are needed to determine if changes in fishery selectivity occur. If changes are noted, the harvest strategies used to determine TACs will need to be modified accordingly.

#### *Markets for Shares and Coordination of the Industry*

The harvest share/processing share system, which will apply to 90 percent of the allocation in each fishery complicates the fishery operationally. The one-to-one relationship between processing shares and Class A harvest shares (which require landing with a holder of unused processing shares) will require that each share holder match up shares with a share holder in the other sector. Regional designations on these shares and the two-year community designations on most processing shares will impose additional coordination requirements on harvesters and processors that need to meet these geographic landing requirements. Although this level of coordination may seem insurmountable, a few characteristics of the fisheries and the management program should help industry reach an acceptable level of coordination. First, the fisheries have relatively few participants, many of whom know each other and have worked together for several years. Approximately 30 processors qualify for allocations under the program. A large majority

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<sup>27</sup> Ghost fishing is a term used to describe pots that are lost, but are still in a condition to continue catching crab or other fish. Crab trapped in the pots and die, effectively rebaiting the trap. Depending on how long it takes for the twine on the escape mechanism in a pot to decompose, a lost pot may continue ghost fishing for several months.

<sup>28</sup> For a discussion of high grading in IFQ fisheries see Copes (1986). Copes also questions whether the setting of a fixed TAC is preferable to a more flexible arrangement that allows managers to close seasons with lower total harvests, if ongoing monitoring suggests stock conditions are worse than perceived at the time the TAC was set.

<sup>29</sup> Issuance of fixed harvest allocations that extend several years into the future are argued by some to reduce the incentive for detrimental high grading, if fishers perceive a future cost to high grading. Others caution that the assumption that long term allocations will protect against overharvests depends on the nature of the stock in question.

<sup>30</sup> Harvest strategies are the rules by which TACs are set. Modifying assumptions concerning harvests and bycatch mortality in these models can accommodate some changes in harvest behavior.



of processing shares will be allocated to seven or eight large processors, substantially limiting the number of shareholders that harvesters must work with to coordinate deliveries. The few relatively small processors could pose some coordination problem to harvesters that do not match shares with the large processors. A second factor that is likely to facilitate coordination is the structure of the preseason arbitration program. To take advantage of arbitration, harvesters will need to commit landings to holders of unused processing shares in the preseason. This matching of shares should result in the coordination of landings necessary to meet the landing requirements of the dual share system. A third factor that is likely to aid in coordination of landings is the program structure for trading of shares. Harvest shares are freely leasable, so harvesters can fish the shares of others, if needed to coordinate landings. In addition, a voluntary cooperative structure is promoted by the program. Harvesters may form cooperatives to harvest allocations in accordance with a cooperative agreement. Although cooperatives are voluntary, most harvesters believe cooperatives will become the norm in these fisheries. Cooperatives add to coordination by creating an institution with pre-established rules for exchange of harvest shares. Cooperative member's annual harvest allocations will be made to the cooperative, so share transfers within the cooperative need not be administered by fishery managers.<sup>31</sup> Lastly, the high value of these fisheries and the substantial investments necessary to participate create a significant incentive for participants to achieve the coordination necessary to fully harvest allocations. Although coordination of landings under the dual share allocation will pose a challenge to participants, the nature of the fisheries and the management structure should aid in coordination of landings under the program.

### *Fairness and Equity*

The greatest controversy surrounding the program concerns its fairness. The processor share allocation is made to address the perceived inequity of a more traditional harvester-only IFQ program, in which substantial market power may shift to harvesters.<sup>32</sup> The greatest concern is expressed by some harvesters who question the equity of the sharing of rents established by the dual share allocations. Clearly, the allocation of processing shares will limit the market available to harvesters. Two program elements are intended to respond to harvester concerns about the limited competition for landings. First, the allocation of 10 percent of annual harvest shares (IFQ) as B shares (deliverable to any processor regardless of processing share holdings) is intended to provide harvesters with additional negotiating leverage. Second, the arbitration program will provide an outside means for harvesters to settle prices for A share landings (which must be delivered to a processor holding processing shares).

The benefit of B share allocations to harvesters is uncertain and will be affected by a few factors. Because only harvesters can initiate arbitration proceedings and arbitration only applies to A shares, the arbitration program provides harvesters with the ability to separate the price determination for the two share types to induce competition among processors for B share landings.<sup>33</sup> The extent to which harvesters can induce processors to compete for B share landings

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<sup>31</sup> Pre-filing of cooperative agreements with the managers facilitates oversight of cooperative structure and membership. Landings of cooperative members are applied to the cooperative's allocation. The cooperative institution facilitates transactions, reducing monitoring and enforcement costs (Criddle and Macinko, 2000).

<sup>32</sup> To date, one study has examined this issue (Matulich and Clark, 2002). Although the methodology of the study has drawn criticism (GAO, 2002), the premise that market power of harvesters with respect to processors may change with the allocation of harvest shares is acknowledged elsewhere (see National Research Council, 1999).

<sup>33</sup> Most processors in the crab fisheries are also active in Alaska groundfish fisheries. Many crab harvesters

by offering higher prices for A share landings is uncertain and also depends on the effects of the arbitration program.<sup>34</sup>

The arbitration program creates a complex process with several facets that could affect prices. The arbitration standard directs the arbiter to select a price that preserves the historic division of first wholesale revenues while considering other relevant factors, such as product improvements and delivery location and timing. This standard was developed by an industry committee to provide certainty to the arbitration process. The ability of the arbiter to consider any relevant factors, however, adds considerable uncertainty and provides the arbiter with substantial power. An arbiter must exercise this power judiciously for decisions to be considered fair. The multistage arbitration system should help develop fairness.

In the first stage of the process general market trends are examined by a market analysis and a price is developed to inform negotiations and the future individual arbitration proceedings. This broad look at the market should ensure that harvesters that are compelled deliver to low revenue processors by the processing share program are not treated substantially different from harvesters that deliver to high revenue processors. In the second stage of the process, harvesters will have the unilateral power to initiate an arbitration proceeding by committing deliveries to a processor holding uncommitted processing shares. Providing only harvesters with the ability to initiate an arbitration proceeding should increase acceptance of the program to harvesters that are compelled to deliver to processor's holding shares. Whether this complex system of establishing linkages between harvesters and processors and determining prices will be perceived as fair cannot be fully predicted.

## **Conclusion**

This section describes key dimensions of the proposed crab fishery management program and identifies the most substantial hurdles that the program must overcome for the Council to judge it a successful management program for the fisheries. First, managers will be challenged by program implementation. Implementation will require initial allocations of harvesting shares to vessel owners and captains and processing shares to processors. Most shares will be regionally designated based on the participant's landings history. Second, managers will face the challenge of protecting stocks as the incentives to high grade increase in the share-based fishery. Third, the markets for the harvest shares, captains shares, and processing shares must develop in a manner that facilitates coordination of harvesting and processing activity required by the share system and the regional landing and processing requirements. Lastly, market opportunities for harvest landings will be constrained by the requirement that deliveries be made to a processing share holder in a designated region. For the program to be considered a success, price formation in the market for landings must be perceived as fair. The long run challenge to the program is to achieve acceptance among all stakeholders – industry, environmental groups, and the public. The Council has already acknowledged the need to periodically review the program and have an open mind to

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have limited activity in other fisheries. The greater dependence of harvesters on crab fisheries is thought by some to increase the power of processors in negotiations. Some harvesters feared that this power and the leverage of processing share allocations could be used to pressure harvesters to deliver both A and B share landings to processing share holders.

<sup>34</sup> An experimental analysis of a pre-season fleet wide arbitration structure suggests that processors might compete for Class B share landings by offering higher prices for Class A share landings. The non-binding fleet wide structure selected by the Council differs from the binding fleet wide structure that was experimentally analyzed in several respects. Whether the fleet wide component of the arbitration structure selected by the Council would lead to processor Class A share price competition for Class B share landings is not known.

changes to achieve the level of acceptance necessary for the program to succeed.

### **The Gulf of Alaska Groundfish Fisheries**

The Council process for the development of a rationalization program for the Gulf of Alaska groundfish fisheries has lagged slightly behind the rationalization process for the Bering Sea and Aleutian Islands crab fisheries. Efforts to rationalize the Gulf fisheries have their genesis in the early 1990s when the Council began development of the License Limitation Program as an initial step toward comprehensive rationalization. The Congressional directive in 2000 contributed momentum to efforts to rationalize the fisheries, leading the Council to form a stakeholder committee to develop alternatives for the rationalization of the Gulf groundfish fisheries in 2001. This committee met several times, completing its work in December 2002 by delivering to the Council a suite of alternatives (and the elements and options from which those alternatives are constructed) for analysis. The comprehensive and complex nature of the programs under consideration has required that the Council continue to refine those alternatives over the last several months. The Council has used several staff discussion papers to develop more workable, reasonable alternatives for comprehensive analysis. This process of refining the alternatives through preliminary analyses will likely continue into early 2004, as staff begins the more comprehensive EIS/RIR/IRFA analysis that will be used by the Council to identify a program for submission to the Secretary of Commerce.

The motivation for rationalization of the Gulf groundfish fisheries is similar to the motivation for rationalization of the crab fisheries in many respects. Clearly, potential economic gains to fishery participants and stakeholders motivate both programs. The Council has expressed its preference for using the share-based management to provide economic stability to harvesters, processors, and communities. In addition, Gulf rationalization will ease harvester adoption of conservation measures. Bycatch reduction in these multispecies fisheries should be facilitated by a slowing of the race for fish and the coordination of fishing effort under a cooperative program. Compliance with Steller sea lion mitigation measures (such as area closures) and future measures designed to protect Essential Fish Habitat should also be simplified in a rationalized fishery. Small vessels are likely to benefit greatly from the removal of time pressures of the race for fish that create incentives for participants to fish in inclement weather and compromise safety.

Although the alternatives are still evolving, a few characteristics of the alternatives that the Council is considering are worth mentioning. The Council has steadfastly maintained that the rationalization program should work to protect the interests of all participants in the fisheries; the Council broadly defines participants to include harvesters, processors, communities, captains and crew. To realize this end, the Council's alternatives contain measures that would directly benefit members of each of these stakeholder groups. Harvest shares would be allocated based on historic participation. A closed class of processors would be established for most of the catcher vessel fleet. For some of the fleet, a harvester may have an obligation to deliver a specific percentage of landings to the processor to which it historically delivered its catch.<sup>35</sup> Captain and crew shares (C shares) are under consideration, as well as owner-on-board requirements for a portion of the fleet. A "block program", which would ensure that some small share holdings are not consolidated with other holdings, could be included in the program to facilitate small scale entry.<sup>36</sup> Several different community protection measures are under consideration, including regionalization of

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35 This type of delivery obligation is similar to the requirement that each catcher vessel cooperative in the AFA pollock fishery delivery 90 percent of its catch to its associated processor.

36 The block program under consideration is fashioned after the block program in the halibut and sablefish IFQ program. As currently proposed, the block program would apply to only harvest shares of Pacific cod.

harvest shares, community allocations, community share purchase rights, and community involvement in the use of a portion of the harvest share allocation.<sup>37</sup>

The Council's alternatives, however, demonstrate its recognition of the differences between the Gulf groundfish fisheries and the Bering Sea and Aleutian Islands crab fisheries. Greater emphasis on the cooperative structure is favored as a means to facilitate coordination of harvests and conservation measures in the multispecies Gulf fisheries.<sup>38</sup> The Council also has chosen to move away from the processor share "two-pie" system favored for rationalization of the crab fisheries. The Council believes that the diverse fleet and multi-species fisheries do not lend themselves to the coordination necessary to satisfy the rigidities of a processor share program.<sup>39</sup> The Council views the difference in fisheries as critical to choosing an appropriate management program and has pledged to continue to develop the program specifically to meet the needs of the Gulf fisheries. As in the crab program, the Council alternatives emphasize the need to monitor the program through data collection and rigorous reviews to ensure that the program meets its objectives and any unintended consequences can be mitigated through amendment.

### **Conclusion**

Over the last three years, the North Pacific Fishery Management Council has devoted substantial efforts to the development of rationalization programs for the Bering Sea and Aleutian Islands crab fisheries and the Gulf of Alaska groundfish fisheries. The Council is developing share-based management programs to address the unique characteristics of these fisheries and the participants that depend on them based on its public process that has used several stakeholder committees and hundreds of hours of public testimony. Throughout the process, the Council's objective has been to develop programs that protect the resource, promote safety, and balance the economic interests of all participants. For the programs to succeed, they will need broad based support of stakeholders that often have competing interests. Recognizing the complexity and controversy of its task, the Council has already acknowledged the need for a regular, rigorous review of the programs once implemented and expressed a willingness to amend the programs to mitigate unintended consequences. Only with such a commitment can the Council ensure the success of these programs.

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37 Under the Community Incentive Fishery Trust program a community-based groups (which would include harvesters, processors, captains and crew, and community representatives) would oversee and control the use of a portion of each harvest allocation. The details of this program are being developed.

38 The Council alternatives create a greater incentive for cooperative membership by limiting the ability of harvesters to receive an exclusive allocation outside of a cooperative.

39 Although the tradability of processor shares makes them more flexible than the delivery commitments of the proposed cooperative program, the share matching required for a processor share program could pose a challenge for the large, diverse, less-corporate fleet in the Gulf. In addition, the burden of the processing share program would be exacerbated by the possible need to coordinate landings of incidental catch species. The more general nature of the cooperative delivery commitments under the Gulf alternatives obviates the need for coordination of harvest and processing shares.

## References

- Copes, Parcival (1986) "A Critical Review of the Individual Quota as a Device in fisheries Management," *Land Economics* 62(3):278-91.
- Criddle, Keith and Seth Macinko (2000) "A requiem for the IFQ in US fisheries?," *Marine Policy* 24, 461-469.
- General Accounting Office (December 2002) *Individual Fishing Quotas, Better Information Could Improve Management*, GAO-03-159, United States General Accounting Office.
- Matulich, Scott C. and Michael Clark (2002) *Efficiency and Equity Choices in fishery Rationalization Polich Design: An Examination of the North Pacific Halibut and Sablefish IFQ Policy Impacts on Processors*, Regional Report 5J02-02, Alaska Department of Fish and Game.
- National Research Council (1999) *Sharing the Fish, Toward a National Policy on Individual Fishing Quotas*, National Academy Press.
- North Pacific Fishery Management Council/National Marine Fisheries Service (2003a) *Alaska Groundfish Fisheries, Draft Programmatic Environmental Impact Statement*, National Marine Fisheries Service, Juneau, Alaska.
- North Pacific Fishery Management Council/National Marine Fisheries Service (2003b) *Bering Sea/Aleutian Islands Crab Fisheries, Draft Programmatic Environmental Impact Statement/Regulatory Impact Review/Initial Regulatory Flexibility Act Analysis*, National Marine Fisheries Service, Juneau, Alaska.
- North Pacific Fishery Management Council (August 2002), *Report to Congress, Bering Sea/Aleutian Islands Crab Rationalization*, North Pacific Fishery Management Council.
- North Pacific Fishery Management Council (April 2003), *Report to Congress, Bering Sea/Aleutian Islands Crab Rationalization – Trailing Amendments*, North Pacific Fishery Management Council.
- Restricted Access Management (RAM) Program (February 2002), *Report to the Fleet, The IFQ Program*, Alaska Region, National Marine Fisheries Service, Juneau, Alaska.